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EXHIBIT E MAINTENANCE PLAN

Introduction

This Maintenance Plan between insert concessioner name (hereinafter referred to as the "Concessioner") and the National Park Service (hereinafter referred to as the "Service") sets forth the maintenance responsibilities of the Concessioner and the Service with regard to those lands and facilities within Great Smoky Mountains National Park (hereinafter referred to as the "Area") that are assigned to the Concessioner for the purposes authorized by the Contract. In the event of any apparent conflict between the terms of the Contract and this Maintenance Plan, the terms of the Contract, including its designations and amendments will prevail.

This plan will remain in effect until superseded or amended. It will be reviewed annually by the Superintendent in consultation with the Concessioner and revised as determined necessary by the Superintendent of the Area. Revisions may not be inconsistent with the terms and conditions of the main body of the Contract. Any revisions must be reasonable and in furtherance of the purposes of this Contract.

PART A – GENERAL STANDARDS

1) General Concession Facilities Standards

Pursuant to the Contract, the Concessioner is solely responsible for the maintenance of all Concession Facilities to the satisfaction of the Service. Compliance with the terms of this Maintenance Plan is required for this purpose.

The Concessioner must conduct all maintenance activities in compliance with Applicable Laws. Applicable Laws include, but are not limited to Service standards, DOI and NPS Asset Management Plans, NPS Management Policies, manufacturer recommendations and specifications and those otherwise defined in the Contract.

2) Definitions

In addition to the defined terms contained or referenced in the Contract, the following definitions apply to this Maintenance Plan.

Asset – Real Property that the Service desires to track and manage as a distinct identifiable entity. It may be a physical structure or grouping of structures, land features, or other tangible property that has a specific service or function such as an office building, lodge, motel, cabin, residence, campground, marina, etc.

Capital Improvement - A Capital Improvement, as further defined in Exhibit A to the Contract, is a structure, fixture, or non-removable equipment provided by the Concessioner pursuant to the terms of this Contract.

Component - A portion of an Asset or system.

Component Renewal/Replacement (CR) – The planned Replacement of an Asset at the end of its Useful Life. Component Renewal/Replacement examples include the replacement of roofs; electrical distribution systems; heating and cooling systems; pavement replacement for roads, parking lots and walkways; and the rehabilitation of windows and/or replacement of windows and doors. Component Renewal/Replacement includes the deconstruction of the existing Component and Replacement with a new Component of equal capability and performance. These actions recur on a periodic cycle of greater than seven years.

Concession Facilities - Concession Facilities, as defined in the main body of the Contract, are all Area lands assigned to the Concessioner under the Contract and all real property improvements assigned to or constructed by the Concessioner under the Contract.

Contract – The agreement (as it may be amended from time to time) to which this Maintenance Plan is attached, including all attachments, exhibits or incorporated provisions of the agreement.

Deferred Maintenance (DM) – Maintenance that was not timely or properly conducted. Continued Deferred Maintenance will result in Deficiencies.

Deficiencies – Defects in an Asset or Component that result when Maintenance is not performed in a timely manner. Deficiencies may not have immediately observable physical consequences, but when allowed to accumulate uncorrected, lead to deterioration of performance, loss of Asset value, or both.

Environmentally Preferable - Products or services that have a lesser or reduced negative effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, productions, manufacturing, packaging, distributions, reuse, operations, maintenance, or disposal of a product or service. Product considerations include, but are not limited to, the environmental impacts of the product's manufacture, product toxicity, and product recycled content including post consumer material, amount of product packaging, energy or water conserving features of the product, product recyclability and biodegradability. These include those products for which standards have been established for federal agency facilities and operations.

Facility Operations – Operational actions performed by the Concessioner on a recurring basis that meet daily operational needs of Concession Facilities. Typical work performed under Facility Operations includes janitorial and custodial services, snow removal, operation of utilities, and grounds keeping. Certain Facility Operations requirements may be included in Exhibit B (Operating Plan) to the Contract.

Feasible - The ability to provide the equipment, materials or procedures that are required because they are technically possible, economically reasonable, appropriate for the location and the use identified, and consistent with industry best management practices.

Hazardous Substance – Any hazardous waste, hazardous chemical or hazardous material as defined under 40 Code of Federal Regulations (CFR), Part 261, US Occupational Safety and Health Administration (OSHA) in 29 CFR 1910.1200 or 49 CFR 171, respectively.

Hazardous Waste - Any waste defined as such under 40 CFR 261 – 265 or applicable State law.

Maintenance – The maintenance of Concession Facilities as described in this Maintenance Plan. Maintenance includes, but is not limited to, actions taken under the following maintenance categories: Component Renewal/Replacement; Recurring Maintenance; Facility Operations; Preventive Maintenance; and Repair.

Personal Property – Manufactured items of independent form and utility including equipment and objects solely for use by the Concessioner to conduct business. Personal Property includes, without limitation, removable equipment, furniture and goods, necessary for Concessioner operations under the Contract. Personal Property may be Government assigned property.

Preventive Maintenance – Planned, scheduled periodic maintenance activities that are performed weekly, monthly, quarterly, semi-annually, or annually on selected Assets or Components, typically including, but not limited to, inspection, lubrication, and adjustment.

Recurring Maintenance – Planned work activities that reoccur on a periodic cycle of greater than one year to sustain the useful life of an Asset or Component. Typical projects include, but are not limited to painting, pump and motor replacement, cleaning, repair and replacement of lighting, engine overhaul, replacement of carpeting, and refinishing hardwood floors.

Repair – Work undertaken to restore damaged or worn out Assets or Components to a fully functional operating condition.

Replacement – Exchange or substitution of one Asset or Component for another that has the capacity to perform the same function at a level of utility and service equivalent to the original Asset or Component.

Solid Waste - Discarded household and business items such as product packaging, grass clippings and other green waste, furniture, clothing, bottles, food scraps, newspapers, white goods and other appliances. It is more commonly referred to as trash, garbage, litter, or rubbish. The term "solid waste," as used in this Maintenance Plan, does not include sewage, septic sludge, hazardous waste, universal waste and miscellaneous maintenance wastes such as used oil, tires and lead-acid batteries.

Sustainable Design - Design that applies the principles of ecology, economics, and ethics to the business of creating necessary and appropriate places for people to visit, live in or work. Development that has a sustainable design sites lightly on the land, demonstrates resource efficiency, and promotes ecological restoration and integrity, thus improving the environment, the economy and society.

Sustainable Practices/Principles - Those choices/decisions, actions and ethics that will best achieve ecological/biological integrity; protect qualities and functions of air, water, soil, and other aspects of the natural environment; and preservation of human cultures. Sustainable practices allow for use and enjoyment by the current generation, while ensuring that future generations will have the same opportunities.

Useful Life – The serviceable life of an Asset or Component.

Universal Waste – Any waste as defined under 40 CFR § 273. These include but are not limited to mercury-containing materials such as thermostats, mercury containing lamps such as fluorescent, high intensity discharge, sodium vapor, mercury vapor, lamps, cathode ray tubes (CRTs) from computers and televisions, nickel-cadmium and sealed lead-acid batteries and waste pesticides.

Waste Prevention - Any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials.

Waste Reduction - Preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products.

3) Concessioner Responsibilities

A) In General

- 1) The Concessioner must undertake Maintenance of Concession Facilities to the satisfaction of the Service, including, without limitation, compliance with the requirements of this Maintenance Plan.
- 2) All Maintenance must be undertaken in accordance with Applicable Laws, including without limitation, applicable building and safety codes. All personnel conducting Maintenance must have the appropriate skills, experience, licenses and certifications to conduct such work.
- 3) The Concessioner, where applicable, must submit project plans to the Service that are stamped by a Professional Engineer or Registered Architect licensed in the applicable State.
- 4) The Concessioner, where applicable, must obtain the appropriate permits required by State or local law, U.S. Environmental Protection Agency, and other regulatory agencies and provide copies of the permits to the Service.
- 5) The Concessioner must conduct Maintenance activities in a manner that, to extent feasible, minimizes environmental impact and utilizes principles of preventive maintenance, waste prevention and reduction, sustainable design and sustainable practices/principles and incorporates best management practices.
- 6) The Concessioner must comply with the Americans with Disabilities Act and the Architectural Barriers Act guidelines where applicable.
- 7) The Concessioner will not construct or install Capital Improvements.
- 8) The Concessioner may perform emergency repairs without prior Service approval as long as appropriate documentation follows within one business day.

B) Environmental, Historic, and Cultural Compliance.

- 1) Certain Maintenance actions may be subject to compliance procedures under the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), and other laws as part of a planning process that allows the Service to ensure that all Concessioner activities meet the requirements of Applicable Laws for natural and cultural resource protection.
- 2) The Concessioner in cooperation with the Service will determine what environmental compliance may be required for particular Maintenance actions.
- 3) Any proposed Maintenance actions that require review under these procedures must be submitted to the Superintendent by the Concessioner in the format required.
- 4) The Concessioner may be required to prepare an environmental assessment, environmental impact statement, or related documents at its expense for certain Maintenance actions. The Service will advise the Concessioner on proper process and procedure.

4) Maintenance Tracking

- A) The Concessioner must schedule and track completion of all of the Concessioner's Maintenance actions and associated expenditures in an electronic format acceptable to the Service that is capable of effectively providing the Service the Maintenance information required by this Maintenance Plan.
- B) The Concessioner must provide the Service with requested Maintenance information on a frequency determined by the Service in an electronic format defined by the Service. This information may include, but is not limited to: (1) outstanding Deferred, Recurring, Preventive, scheduled, and unscheduled Maintenance and Component Renewal by Asset; and (2) budgeted and actual expenditures by Asset for Deferred, Recurring, Preventive, scheduled, and unscheduled Maintenance and Component Renewal. The Service, in consultation with the Concessioner, will define the specific requirements for providing requested information, including data export formats, required fields, and data structure.

5) Concessioner Inspections

The Concessioner must conduct annual inspections of Concession Facilities to determine compliance with this Maintenance Plan and to develop future Maintenance requirements.

6) Annual Concessioner Maintenance Plan (ACMP)

The Concessioner must provide the Service on an annual basis (for Service review and approval) a proposed Annual Concessioner Maintenance Plan for the next calendar year applicable to all Concession Facilities. The Concessioner must deliver the proposed revised ACMP to the Service on or before **January 15** of each year. The ACMP must include the following information.

A) Maintenance Action Information

The ACMP must include the following Maintenance action information:

- (1) *Preventive Maintenance (PM)*. The proposed ACMP must include PM actions, procedures and schedules that ensure proper Preventive Maintenance of all Concession Facilities. At a minimum, the PM actions, procedures and schedules must include summary procedures for each Asset, including, but not limited to, roofs, building envelopes, and mechanical equipment.
- (2) *Recurring Maintenance*. The ACMP must include Recurring Maintenance actions, procedures and schedules for Recurring Maintenance to be performed.
- (3) *Scheduled Repair*. The proposed ACMP must include actions, plans and procedures for scheduled Repair of Concession Facilities.
- (4) *Unscheduled Repair*. The ACMP must include a service call procedure and method to prioritize service calls for unscheduled Repairs.
- (5) *Component Renewal/Replacement*. The proposed ACMP must include actions, plans and procedures for Component Renewal/Replacement.
- (6) A description of the Deferred Maintenance (and any resulting Deficiencies) that are to be cured under the terms of the proposed ACMP.

- (7) Inspection plans and procedures that demonstrate how the Concessioner will oversee the conduct of Maintenance during the next calendar year.

B) Projected Maintenance Expenditures

The ACMP must also include the Concessioner's estimated expenditures associated with the proposed ACMP, including, without limitation, a breakout of labor, materials, contracted services, and indirect costs on an Asset basis applicable to each Maintenance category set forth above.

7) Annual Concessioner Maintenance Reporting (ACMR)

The Concessioner must provide the Service with an Annual Maintenance Report that covers all Concession Facilities and presents the Maintenance accomplished during the previous calendar year. The Concessioner must deliver the report to the Service on or before **January 15th** of each year. The ACMR must include the following elements:

A) Maintenance Actions

The ACMR must include a summary of all Maintenance actions by applicable Asset and Maintenance category that were completed in the previous calendar year, including, without limitation, actions to cure Deferred Maintenance (and any resulting Deficiencies).

B) Maintenance Expenditures

The ACMR must include the Concessioner's expenditures associated with Maintenance by applicable Asset and Maintenance category for the previous calendar year, including, without limitation, expenditures to cure Deferred Maintenance (and any resulting Deficiencies).

8) Personal Property Report

The Concessioner must provide the Service with a planned Personal Property replacement, rehabilitation, and repair schedule for the next calendar year annually by **December 1** for review and approval of the Service. The plan must include the specifications, item description, estimated date of replacement, estimated replacement cost, expected life of replacement property, and expected salvage value of replaced Personal Property at time of replacement.

9) Service Responsibilities

Nothing in this Maintenance Plan will be construed as requiring the Service to conduct Maintenance of Concession Facilities of any kind except as otherwise expressly stated by the terms of this Maintenance Plan. Part B of this Maintenance Plan may describe certain Service responsibilities for particular elements of Maintenance of Concession Facilities. Any approval or consent given by the Service of any plan, permit, report, inspection, or any other consent or approval given by the Service under this Maintenance Plan does not relieve the Concessioner or the Concessioner's contractors of any responsibility for any errors or omissions or from the responsibility to comply with the requirements of this Maintenance Plan or the Contract.

A) Inspections

The Service from time to time (as determined necessary by the Service but no less than annually) will inspect the condition of Concession Facilities and the progress and quality of Maintenance activities. The Concessioner must provide qualified personnel to accompany the Service when Concession Facilities inspection is performed.

B) Evaluation of Concessioner Maintenance

The Service will provide the Concessioner with an annual evaluation of Concession Facilities. The evaluation will be based, among other matters, on the application of the National Park Service Facility Condition Standards during facility inspection. The evaluation will be provided to the Concessioner as a record of Concession Facilities condition documenting the Concessioner's compliance with its obligation to perform all necessary Maintenance, including, without limitation, Annual Concessioner Maintenance Plan (ACMP) actions. The findings and results of the evaluation will become part of the basis of evaluating Concessioner performance under the "NPS Concessioner Annual Overall Rating" program.

PART B – AREA SPECIFIC MAINTENANCE REQUIREMENTS

1) General

Deficiencies. The Concessioner must correct any deficiencies on a timely basis to achieve the basic goals described in the Service's Concession Guidelines relative to all services required under the Contract.

2) Buildings

The Concessioner is responsible for the facility maintenance, preventive, recurring maintenance and component renewal as well as the repair and cleaning of the interior and exterior of all buildings within the assigned area including: flooring, walls, doors, ceilings, locks and other security systems, windows, HVAC systems, plumbing system and fixtures, electrical systems, interior and exterior lighting fixtures, gutters, downspouts and roof drains, and exterior walls, windows and doors.

A) Interior. The Concessioner must ensure that all interior spaces are clean, properly illuminated, and well maintained, including, at a minimum, the following:

- (1) *Restrooms.* Public restrooms must be kept clean and stocked with paper products during Concession Facility operating hours. A minimum of two complete cleanings must be conducted daily. Hourly inspections of restrooms, during operating hours, are to be scheduled, conducted and documented; immediate corrective action must be taken to correct noted deficiencies. Fixtures and equipment must be repaired promptly upon discovery or notification of a deficiency. No fixture may remain out of service for more than 24 hours. If this timeframe is to be exceeded, the Concessioner must provide an explanation to the Service detailing the reason for the delay. If fixtures and equipment will remain out of service for more than one hour, the Concessioner will post a sign notifying the public of this fact.
- (2) *Flooring.* The Concessioner must keep floors clean and free of litter and stains. Tile and vinyl floor coverings must be clean, waxed, or buffed, free of cracks, chips, and worn places. Wax should not be allowed to build up or become cloudy.
- (3) *Walls and ceilings.* The Concessioner must maintain walls and ceilings with a clean appearance, free of breaks and stains.
- (4) *Windows.* Windows must be clean and unbroken. When a deficiency is identified it must be repaired immediately. Grouting must be clean and in good repair.
- (5) *Interior Lighting.* The Concessioner must maintain interior lighting as appropriate for its use.

B) Exterior. The Concessioner must maintain the structural and architectural integrity of the Concession Facilities, including performing the following activities.

- (1) *Roofs.* The Concessioner must inspect roofs on an annual basis to ensure that roofing materials are intact and free of deterioration that may affect structural quality, and that roofs are not jeopardized by adjacent vegetation or overhanging tree limbs.
- (2) *Gutters, downspouts and roof drains.* The Concessioner must ensure that gutters, downspouts, and roof drains remain attached to each of the buildings. The Concessioner must inspect and clean gutters, downspouts and roof drains annually at a minimum to maintain the system free of obstructions and fully operational.
- (3) *Doors and windows.* The Concessioner must routinely inspect and maintain doors and windows to prevent moisture from causing deterioration of materials or structural damage to the building.
- (4) *Siding, walls and trim.* The Concessioner must routinely inspect and maintain siding to prevent moisture from entering the building or causing deterioration of the siding material. The Concessioner must maintain the walls and trim of Concession Facilities in satisfactory condition, as well as perform seasonal painting (if determined necessary by the Service)
- (5) *Foundations and exterior walls.* The Concessioner must inspect foundations and exterior walls on an annual basis to ensure they are structurally sound, maintain them to prevent settlement or displacement and prevent vegetation from taking hold within 12" of the perimeter

C) Painting.

- (1) *Paint.* The concessioner must inspect *paintable* surfaces annually and repaint when deficiencies are identified. Paint products must be of a "best quality" from a major manufacturer and a type and color that are readily available on the open market and approved by the Service. The Service must approve changes to paint colors. The Concessioner must utilize reprocessed, low volatile organic content (VOC), latex coatings when technically feasible and at minimum would include a prime coat and a finish coat. No oil based paints may be used without the prior written approval of the Service.
- (2) *Asbestos, Polychlorinated Biphenyls (PCBs), and Lead-based Paint.* The Concessioner is responsible for maintaining health and safety standards in the presence of asbestos, PCBs, and lead-based paint in Concessioner Facilities. The Concessioner must obtain written approval from the Service prior to repair or replacement of asbestos containing materials.

D) Winter Closures.

- (1) The Concessioner must ensure that buildings are adequately winterized and secured (including measures to prevent pest/wildlife from entering) while unoccupied. The Concessioner must drain all water and sewer lines and take necessary steps to prevent freezing.
- (2) The Concessioner must coordinate its re-opening with the Service. The Concessioner must notify the Service of re-opening plans at least 30 days prior to re-opening.

3) Signs

- A) Responsibilities.** After execution of the contract and before the visitor season begins, the Concessioner must provide all interior and exterior signs relating to its operations and services on or within Concession Facilities. Examples are signs identifying the location of functions within Concession Facilities, signs identifying operating services and hours, and signs identifying Concession rules or policies.
- B) Location and Type.** At all times during this Contract, the Concessioner must ensure its signs are appropriately located, accurate, attractive, and well maintained. The Concessioner must prepare its signs in a professional manner, appropriate for the purpose they serve, and consistent with Service guidelines. The Concessioner must obtain written Service approval prior to any exterior sign installation.
- C) Exterior Signs.** To ensure that exterior signs comply with Area sign standards, the Concessioner must obtain prior approval from the Service for all exterior signs.
- D) Temporary Signs.** The Concessioner must replace any defaced or missing sign within seven days of detection. Temporary signs may not be hand written. If the sign addresses a life safety issue, the Concessioner must replace it immediately.

4) Grounds and Landscaping**A) General**

- (1) The Concessioner must maintain the grounds of the assigned areas, depicted in Exhibit C.
- (2) The Concessioner must keep all Concession Facilities free of litter, debris, and abandoned equipment, vehicles (except where designated), furniture, and fixtures. The Concessioner must keep the assigned areas free and clear at all times of safety hazards (broken glass, sharp objects, etc.).
- (3) The Concessioner must submit any plans for landscaping, including any plant species to be used, to the Service for review and approval. The Concessioner's landscaping activities must be consistent with Service policies including Integrated Pest Management.
- (4) Landscaping activities that utilize power equipment must be timed to minimize disturbance to visitors.
- (5) The Concessioner must maintain and clean daily any cigarette receptacles in the Assigned Area.
- (6) The Concessioner must conduct its business and daily activities in such a manner as to minimize impacts on the natural scene, including erosion control (such as culvert and gutter maintenance) and protection of native vegetation.

B) Parking Lots and Sidewalks.

- (1) The Concessioner must perform daily upkeep of parking lots and sidewalks within the assigned area including sweeping or use of a leaf blower.

C) Hazard Tree Removal

- (1) The Concessioner must notify the Service of potentially hazardous trees within the Concession land assignment. If the Service identifies a tree as hazardous, the Service will either remove the tree or direct the Concessioner to have the tree promptly removed.
- (2) The Concessioner must obtain the specific approval of the Service before removing hazard trees or tree limbs from its assigned areas.
- (3) The Concessioner must consult with the Service regarding the disposition and use of the wood from downed trees. The Concessioner cannot sell the wood or use it for any purpose without prior approval of the Service.

5) Weed and Pest Management

- A)** The Concessioner must bring to the attention of the Service the existence of pests or exotic plants within Concession Facilities of which it becomes aware.
- B)** The Concessioner in accordance with the Service Integrated Pest Management (IPM) Program must conduct integrated pest management, which includes the control of both native and non-native invasive flora and fauna by chemical and other means. Actions taken by the Concessioner to control pests are subject to Service approval. The Concessioner must review specific problems with the Service IPM Coordinator.
- C)** The Concessioner must only use chemicals, pesticides, and toxic materials and substances as a last resort, as part of an IPM program, and with prior approval by the Service.
- D)** The Concessioner must submit a Pesticide Request Form requesting approval of anticipated pesticide use for the following year, and a Pesticide Use Log, which tracks pesticide use for the previous year, to the Service by **January 15** of each year.
- E)** The Concessioner must tightly seal buildings and supplies, and maintain clean facilities, to minimize pest entry.
- F)** Adequate steps will be taken to prevent the introduction and importation of exotic plants and species into the Area.
 - (1) Prior to being moved into the Area, agricultural equipment, vehicles and horse drawn or motorized equipment, which is transferred into the Area will be:
 - (a) Thoroughly pressure cleaned with cleaning detergent, removing all soil sediment and vegetation with particular attention being paid to the undercarriage, wheels, and wheel wells of the equipment.
 - (b) If equipment is equipped with passenger area, this area will be thoroughly vacuumed.
 - (c) Equipment or vehicle log will reflect time, date, location, duration, and method of cleaning.

6) Personal Property

- A)** The Concessioner must maintain, service, and repair all Personal Property including furnishings, appliances, machinery, and equipment per manufacturers' recommendations, and replace as necessary.
- B)** The Service reserves the right to require the Concessioner to replace personal property provided by the Concessioner including furniture and equipment at the end of its remaining life or when the item presents a quality, safety, or environmental issue.

7) Utilities

- A) Energy and Water Conservation:** The Concessioner must encourage conservation of energy, water, and other resources through policies, programs, and goals. The Concessioner must participate in energy audits and incentives if offered by its power provider.
- B) Electrical.**
 - (1) Duke Energy maintains the primary electrical lines within the Concession Facilities. The Concessioner must contact Duke Energy to contract for electrical service. The provider directly bills the Concessioner for electricity. The Concessioner must provide prompt payment for these services.

- (2) The Concessioner must maintain all secondary electrical lines and equipment (conduit, panels, switches, circuits, lines, etc.) within the Concession Facilities. Any changes to the utility system require written approval from the Service.
- (3) The Concessioner must repair or replace all electrical system damage within Concession Facilities and damage occurring beyond the Concession Facilities that result from actions of the Concessioner, its employees, agents, or contractors.
- (4) The Concessioner must ensure that all electrical circuits under its control meet, at a minimum, the National Electric Code and Applicable Tennessee Code.
- (5) The Concessioner is required to use a licensed electrician for all electrical projects other than common Maintenance functions.
- (6) All wet areas must have a GFI outlet, in compliance with NFPA 70.
- (7) Before adding high-voltage appliances such as coffee pots, refrigerators, food service equipment, or electric heaters, the Concessioner must ensure circuitry is adequate to accommodate these appliances. The Service must approve in advance upgrades to the electrical system or addition of high voltage appliances.

C) Water

- (1) The Eastern Band of Cherokee Indians (ECBI) Water and Sewer Department provides water service to the Concession Facilities. The Concessioner must contact Cherokee Water Department to contract for water service. The provider directly bills the Concessioner for water. The Concessioner must provide prompt payment for these services.
- (2) The Concessioner is responsible for the performance of all Maintenance and repair of all water system components downstream of (but not including) the primary meters. The Concessioner must activate, deactivate, and winterize system components as necessary, as part of normal Maintenance. All maintenance of water lines must be performed by a licensed plumber.
- (3) The Concessioner must repair or replace, as directed by the Service, any water system damage within Concession Facilities and damage occurring beyond the Concession Facilities that results from actions of the Concessioner, its employees, agents, or contractors. The Service will charge the Concessioner for repairs resulting from damage to a water system due to Concessioner activities.
- (4) The Concessioner must comply with the Area's Backflow and Cross Connection Policy.
- (5) The Concessioner must maintain (and replace as necessary) approved backflow prevention devices within assigned Concession Facilities.
- (6) The Concessioner must test for and repair leaks within Concession Facilities. If water usage data indicates water use in excess of average, the Concessioner must investigate and mitigate leaks or other issues.
- (7) The Concessioner must use a licensed contractor for all non-routine (other than common) water and sewer projects.

D) Sewer

- (1) The ECBI Water and Sewer Department provides sewer service to the Concession Facilities. The Concessioner must contact the Cherokee Water Department to contract for sewer service. The provider directly bills the Concessioner for sewer service. The Concessioner must provide prompt payment for these services.
- (2) The Concessioner must maintain exterior lines and laterals from Concession Facilities to the sewer cleanout of the building. All maintenance of sewer lines must be performed by a licensed plumber.
- (3) The Concessioner must clear stoppages and make repairs for damage caused by such stoppages.

E) Telephone.

- (1) The Concessioner must contract with independent suppliers to provide telephone service.
- (2) The Concessioner must provide and maintain all telephone services, equipment and lines within and for Concession Facilities, including wiring on the user side of connections and panels.

9) Solid Waste

A) Solid Waste Source Reduction and Recycling

- (1) The Concessioner is encouraged to implement a recycling program that will include, at a minimum, office paper and cardboard used in its operation.
- (2) The Concessioner is encouraged to implement a recycling program that will include, at a minimum, aluminum, glass, and plastic beverage containers generated by the visiting public and employees.
- (3) The Concessioner is encouraged to provide recycling containers for these materials that meet the requirements of Section C of this Plan in at least one location with the Concession Facilities. These containers will be emptied, at a minimum, each evening before closing and the contents will be stored in a bear-proof location pending removal from the Concession Facilities. The location or locations for these containers must be approved by the Service.

10) Fire and Life Safety Systems Policy and Procedures**A) The Concessioner must comply with applicable National Fire Protection Association (NFPA) codes.****B) The Concessioner must contract with appropriate and qualified fire protection system contractors, licensed by the State and approved by the Service, to conduct the periodic inspection, testing and maintenance of fire and life safety systems and devices, as required by and in compliance with applicable National Fire Protection Association Codes and Standards. This work can also be performed by qualified concession personnel, as approved by the Service. The systems and devices include but are not limited to:**

- (1) Fire Detection and Notification Systems
- (2) Fire Suppression Systems
- (3) Fire Extinguishers
- (4) Emergency Lighting
- (5) Illuminated Exit Signs

C) Monthly Inspections. The Concessioner must ensure all listed devices are inspected on a monthly basis. The concessioner must document inspections of fire extinguisher and other fire and life safety system components and devices. The Concessioner must maintain documentation of inspections on site for a minimum of three years and provide a copy to the Service upon request. A proactive fire prevention program must include prompt repair or replacement of fire protection systems and life safety systems and components that are not functioning properly. Periodic inspections must include the following:

- (1) *Fire Extinguishers (Routine Inspection, Testing and Maintenance):* The Concessioner must perform periodic inspection, testing, and maintenance in accordance with the minimum requirements of NFPA 10 (standard for Portable Fire Extinguishers). Annually the Concessioner must have a licensed fire extinguisher service contractor perform the required inspection, testing, and maintenance of each extinguisher. The Concessioner must perform a monthly visual inspection on all fire extinguishers. Monthly visual inspections can be performed by Concessions personnel that have been properly trained, as approved by the Service. The Concessioner must record monthly visual inspections which must include the following:
 - (a) Extinguisher is mounted in a proper place and at an appropriate height
 - (b) Access and visibility not obstructed
 - (c) Operating instructions facing outward
 - (d) Seals or other tamper indicators intact
 - (e) Pressure gauge in normal range
 - (f) No physical damage
 - (g) Current date
- (4) *Fire Suppression Systems and Other (e.g. Kitchen Hood and Computer Rooms) Systems:* The Concessioner must perform periodic inspection, testing, and maintenance in accordance with the minimum requirements of NFPA 96 (Commercial Kitchen Code). All minimum periodicity requirements for inspection, testing, and maintenance will be enforced by the Service. A properly licensed contractor must perform all inspection, testing, and maintenance. The Concessioner must

test fire alarms and emergency dialers monthly during peak season, with the results reported to the Service

- (5) *Emergency Lighting and Illuminated Exit Signs*: The Concessioner must perform periodic inspection, testing, and maintenance in accordance with the minimum requirements of NFPA 101 (Life Safety Code). The Service will enforce all minimum periodicity requirements for inspection, testing, and maintenance. The Concessioner may perform inspection, testing, and maintenance, as approved by the Service.

11) Concessioner Responsibilities (by assigned land or asset)

A) Horse-Related Facilities

- (1) The Concessioner will be responsible for the maintenance and repair of corrals, stalls, hitch rails, watering troughs and systems, and other equipment and facilities related to the use and care of horses.
- (2) The Concessioner will be responsible for removing manure from his or her assigned area. Accumulated manure will be removed from the Concessioner's assigned area at least once each week and disposed of properly outside the Area. Trucks, trailers, or structures used to store manure prior to disposal will be covered by a tarp or roof except when manure is being loaded or unloaded.

B) Horse Trails

- (1) *Responsibility*. In general, the Concessioner will be responsible for routine, recurring, and deferred maintenance on the trails used for any horseback rides up to two and one-half hours in duration. The Concessioner will only be responsible for deferred maintenance for deficiencies that result from inadequate or delayed routine and recurring maintenance by the Concessioner.
- (2) *Specific Trails*. The specific trails that the Concessioner is responsible for maintaining are shown in Attachment 1 of this Maintenance Plan. If the Service changes the assigned trails shown in the Operating Plan, the trails the Concessioner is responsible for maintaining will change accordingly.
- (3) *Trail Maintenance Standards*. The Concessioner will maintain trails in accordance with standards to be provided and periodically updated by the Superintendent. The *Great Smoky Mountains Trail Maintenance Standards for Concessioner Horseback Riding Trails* provides overall guidelines and standards for trail maintenance and is incorporated, by reference, into this Maintenance Plan. A copy of these standards is included as Attachment 3 of this Maintenance Plan.
- (4) *Trail Tread Hardening Measures*. Due to the heavy and continuous horse traffic on Concession trails used for the one to two and one-half hour rides offered by the Concessioner, the application of crushed rock is required to harden the trail tread to prevent erosion and deterioration of the trail tread. The Concessioner will be responsible for applying crushed rock to the trails shown in Attachment 1 of this Maintenance Plan to harden the trail tread to accommodate this heavy use. As a minimum, the Concessioner will apply 10 tons of crushed rock on the trails maintained by the Concessioner each calendar year and will provide documentation for the purchase and delivery of crushed rock as part of the ACMR.
- (5) *Use of Mechanized Equipment*. The Concessioner is authorized to use mechanized equipment approved by the Superintendent, including chainsaws and small to mid-size heavy equipment (maximum 60" overall width), as required to maintain the horse trails shown in Attachment 1 of this Maintenance Plan. Prior to using mechanized equipment to maintain trails, the Concessioner will submit a plan to the Superintendent for approval describing the Concessioner's proposed use of mechanized equipment on trails. This plan will be submitted annually by **January 15** as part of the Concessioner's Annual Concessioner Maintenance Plan (ACMP). This plan will contain, at a minimum, the information included in the *Annual Plan for Mechanized Equipment Use* form that is included in Attachment 4 of this Maintenance Plan.

C) Wagon and/or Carriage Ride Road

- (1) *Responsibility*. The Concessioner will be responsible for preventive and cyclic maintenance on the administrative road assigned for wagon and carriage rides. The Concessioner will only be responsible for deferred maintenance for deficiencies that result from inadequate or delayed preventive and cyclic maintenance by the Concessioner. The Concessioner will not be responsible for deferred maintenance deficiencies that existed as of the effective date of this CONTRACT.

- (2) *Specific Trails.* The administrative road that the Concessioner is responsible for maintaining is shown in Attachment 2 of this Maintenance Plan. If the Service changes the assigned route for wagon and carriage rides shown in the Operating Plan, the route the Concessioner is responsible for maintaining will change accordingly.
- (3) *Administrative Road Maintenance Standards.* The Concessioner will keep this road clear of fallen trees, tree limbs and branches, and large rocks. The Concessioner will apply crushed rock if required to maintain a durable, hardened surface for wagon and carriage rides.
- (4) *Use of Mechanized Equipment.* The Concessioner is authorized to use mechanized equipment approved by the Superintendent, including chainsaws and heavy equipment, as required to maintain the wagon and carriage route shown in Attachment 2 of this Maintenance Plan. Prior to using mechanized equipment to maintain this route, the Concessioner will submit a plan to the Superintendent for approval describing the Concessioner's proposed use of mechanized equipment. This plan will be submitted annually by **January 15** as part of the Concessioner's Annual Concessioner Maintenance Plan (ACMP). This plan will contain, at a minimum, the information included in the *Annual Plan for Mechanized Equipment Use* form that is included in Attachment 4 of this Maintenance Plan.

D) Vending Area (Asset No. Unassigned)

- (1) The vending area will be well kept clean and free of litter at all times.
- (2) Vending machines will be kept in good operating condition and the exterior surface will be cleaned as necessary. If a vending machine will be out of order for more than one hour, the Concessioner will post a sign notifying the public of this fact.

12) Service Responsibilities

The Service will assist the Concessioner in its maintenance program by assuming and executing the following responsibilities:

A) Parking Lots, Access Roads and Stone Walls

- (1) The Service will conduct maintenance beyond that specified above for paved access roads and public parking areas (i.e. paving, patching and repairing of potholes).
- (2) Subject to the availability of funding, the Service will repair and replace as needed all asphalt parking lots and asphalt access roads within the concessioners assigned area.

B) Grounds Maintenance. The Service will undertake the following grounds maintenance activities:

- (1) *Signs.* The Service will provide all necessary signs leading to the Concession Facilities and located at the Area entrance indicating that Concession-provided facilities and services are available within the Area.

C) Utility Responsibilities

- (1) The Eastern Band of Cherokee Indians (ECBI) Water and Sewer Department will maintain all main water and sewer lines outside of the Concession Facilities. Cherokee Water and Sewer Department maintains all primary water mains in the Area, maintains the water lines up until the primary meter and maintains the the sewer lines from the sewer cleanout.
- (2) The Service will assist with the location and identification of water and sewer lines and contacting the ECBI Water and Sewer Department to arrange repairs if the damaged section is within an area of Service responsibility.
- (3) The ECBI Water and Sewer Department provides bacteriological monitoring and chemical analysis of potable water as required by all Applicable Laws.
- (4) If the Service needs to access water and sewer mains within the Concession Facilities, the ECBI Water and Sewer Department will restore the area unless the Concessioner (including its employees, agents, or contractors) has caused the need to access the main.
- (5) The Service will notify the Concessioner for all planned service disruptions.

D) Fire and Life Safety

- (1) The Service is the Authority Having Jurisdiction (AHJ) for all structural fire and life safety issues on federal lands administered by the Service. The Service may conduct fire safety inspections at its

discretion over the course of the Contract term. The Concessioner will be contacted at the time of the evaluations so that a representative of the Concessioner may accompany the Service evaluator.

- (2) The Service reserves the right to conduct periodic prescribed burns, which may produce smoke impacts to visitors.

E) Solid Waste

- (1) Solid Waste Receptacles

- (a) The Service may, but is not required to, provide bear and vermin proof dumpsters and trash receptacles for the Concession Facilities.

PART C – CONCESSIONER ENVIRONMENTAL RESPONSIBILITIES

1) General

The following Concessioner environmental responsibilities are specified for maintenance. Area Specific Maintenance responsibilities provided in Part B may provide more specific and/or additional environmental requirements. When in conflict, responsibilities described in Part B supersede those identified in this part.

A) Environmental Management Standards

- (1) The Concessioner must follow Service Environmental Management System standards (refer to Director's Orders 13A) to minimize environmental impacts and uses concepts of sustainable design and sustainable practices/principles.

B) Air Quality

- (1) The Concessioner must minimize impacts to air quality in maintenance under this contract through the use of appropriate control equipment and practices.
- (2) The Concessioner must use diesel fuel/heating oil containing no more than 500 parts per million (ppm) sulfur (i.e., low sulfur fuel) accepted as permitted by the Service.
- (3) The Concessioner must not use halon fire suppression systems except as permitted by the Service.

C) Environmentally Preferable Products, Materials and Equipment

- (1) The Concessioner must use products, materials and equipment that are environmentally preferable where feasible in maintenance. Environmentally preferable maintenance related products, materials and equipment include but are not limited to re-refined oils, re-tread tires, bio-based lubricants, low-toxicity cleaners and chemical additives for toilets, low-toxicity and recycled antifreeze, safe alternatives to ozone-depleting substances for HVAC equipment, construction and building materials with recycled content, and alternative fuel vehicles.
- (2) The Concessioner must purchase environmentally friendly cleaners and other products whenever appropriate.
- (3) The Concessioner must minimize use of hazardous substances in its operations where feasible. The Concessioner must use polystyrene and plastics as little as possible, and may not use polystyrene that contains chlorofluorocarbons. Other specifically specified Environmentally Preferable materials are identified in other sections of this Maintenance Plan.

D) Hazardous Substances

- (1) The Concessioner must minimize the use of hazardous substances for maintenance purposes under this Contract where feasible.
- (2) The Concessioner must provide secondary containment for hazardous substances storage where there is a reasonable potential for discharge to the environment. At a minimum, the Concessioner must provide secondary containment for hazardous substances located in outside storage areas and in interior storage areas in the proximity of exterior doorways or floor drains, on docks or vessels.
- (3) The Concessioner will provide an inventory of hazardous substances used and stored in the Area to the Service annually in accordance with Section 6(d)(1) of the Contract.
- (4) The Concessioner must encourage companies and businesses it does business with to provide cleaner technologies and safer alternatives to toxic and Hazardous Materials and to develop innovative technology.

E) Hazardous, Universal and Other Miscellaneous Maintenance Wastes

- (1) The Concessioner must minimize the generation of hazardous, universal and miscellaneous maintenance waste where feasible.
- (2) The Concessioner must recycle hazardous, universal, and miscellaneous maintenance wastes, where feasible, including but not limited to, used oil, used oil contaminated with refrigerant, used solvents, used antifreeze, paints, used batteries, and used fluorescent lamps (including CFLs).
- (3) Concessioner must obtain approval from the Service for hazardous, universal, and miscellaneous maintenance waste storage area and designs.

- (4) If the Concessioner is a conditionally exempt small quantity generator (CESQG) as defined in federal regulations, it must follow small quantity generator (SQG) regulations related to container labeling, storage, accumulation times, use of designated disposal facilities, contingency planning, training, and recordkeeping.
- (5) The Concessioner must provide secondary containment for hazardous substances and universal and miscellaneous Maintenance waste where there is a reasonable potential for discharge to the environment. At a minimum, the Concessioner must provide secondary containment for these substances and waste located in outside storage areas and in interior storage areas in the proximity of exterior doorways or floor drains.
- (6) The Concessioner must manage universal wastes in accordance with federal universal waste regulations irrespective of hazardous waste generator status (i.e., storage, labeling, employee training, and disposal).
- (7) The Concessioner must address hazardous, universal, and miscellaneous maintenance wastes in its inventory of waste streams which is required annually in accordance with Section 6(d)(1) of the Contract. The inventory must identify each waste type, locations stored, amount generated annually, amount typically generated per month and amount typically stored on site at any one time.

F) Solid Waste

(1) Litter Abatement

- (a) The Concessioner must develop, promote and implement a litter abatement program and provide litter free messages on appropriate materials and in appropriate locations.
- (b) The Concessioner must keep all Concession Facilities free of litter, debris, and abandoned equipment, vehicles, furniture, and fixtures.

(2) Solid Waste Storage and Collection and Disposal

- (a) The Concessioner is responsible for providing, at its own expense, an effective system for the collection, storage and disposal of solid waste generated by its facilities and services as well as the solid waste generated by the visiting public at its facilities.
- (b) To prevent pest attraction and breeding, all solid waste from the Concessioner's operations must be adequately bagged, tied and stored in sealed containers.
- (c) Solid waste collection and disposal must be conducted on a schedule approved by the Service, at a rate as necessary to prevent the accumulation of waste.
- (d) Solid waste that is not recycled must be properly disposed at an authorized sanitary landfill or transfer station.

(3) Solid Waste Receptacles

- (a) The Concessioner must locate its solid waste containers (i.e., cans, "roll-off" containers/dumpsters, etc.) conveniently and in sufficient quantity to handle the needs of its operations. The Concessioner must not allow waste to accumulate in containers to the point of overflowing.
- (b) Outdoor receptacles must be waterproof, vermin-proof, bear-proof and covered with working lids. Indoor receptacles should be similarly constructed based on use (i.e., food waste versus office trash). All solid waste receptacles must be approved by the Service.
- (c) The Concessioner must keep its receptacles clean, well maintained, painted in Service-approved colors, and serviceable; containers must be clearly signed; sites must be free of spills, waste, and odors. All solid waste containers must remain closed when containers are not in use.
- (d) Concessioner bulk solid waste storage/accumulation facilities must be screened from the public.

(4) Solid Waste Source Reduction and Recycling

- (a) The Concessioner must seek to maximize opportunities for source reduction, reuse and recycling of wastes generated from its operations.

- (b) The Concessioner must implement a source reduction program designed to minimize its use of disposable products in its operations. Purchase and reuse of materials is encouraged where feasible as the first choice in source reduction.
 - (c) The Concessioner is encouraged to reuse materials where allowable under Applicable Laws where the collection of the materials must not present public health, safety or environmental concerns. Opportunities include the reuse of retail product packaging.
 - (d) The Concessioner is encouraged to develop, promote and implement a recycling program that fully supports the efforts of the Service for all Park specified materials. These may include but may not be limited to paper, newsprint, cardboard, bimetals, plastics, aluminum and glass. It may also include large items such as computers and other electronics, white goods and other bulky items and others.
 - (e) The Concessioner is encouraged to make recycling receptacles available to the public and Concession employees.
 - (f) Recycling containers must be waterproof, vermin-proof, bear proof and covered with working lids as necessary to maintain the quality of the recyclables for market and to prevent vermin from being attracted to the recycling containers. Containers must be clearly signed; sites must be free of spills, waste, and odors. It is encouraged that lids are provided with openings or holes sized to limit the types of materials deposited and to minimize contamination in recycling containers. All recycling receptacles must be approved by the Service.
 - (g) The Concessioner must remove all recyclables from the Area and transport them to an authorized recycling center. The Concessioner may contract with an independent vendor, with the approval of the Service, to provide recycling services.
- (5) *Composting*
- (a) The Concessioner must use solid waste composting as a waste management method if feasible.
 - (b) The Concessioner composting system must be animal-proof and Service-approved.

G) Water and Energy Efficiency

- (1) The Concessioner must consider water and energy efficiency in all Facility Management practices and integrate water-conserving and energy conserving measures whenever feasible.
- (2) In addition to meeting standards established in accordance with Applicable Laws, Concession Facilities equipment and practices must be consistent with water and energy efficiency standards established for federal facilities and operations where feasible.
- (3) As new technologies are developed, the Concessioner must assess these opportunities and integrate them into existing operations where feasible and there is the potential for increased efficiency, reduced water or energy consumption, or reduced impacts on the environment.

H) Wastewater

- (1) The Concessioner must minimize impacts to water quality in maintenance under this contract through the use of appropriate control equipment and practices.
- (2) The Concessioner must prevent discharges to the sanitary sewer system that could result in pass through of contaminate or that could interfere with the operation of the sanitary wastewater treatment system.
- (3) The Concessioner must maintain assigned wastewater treatment systems (i.e., oil-water separators, grease traps) on a frequency adequate to ensure proper operation to maintain wastewater quality. The Concessioner must maintain maintenance log for this wastewater treatment equipment which must be made available to the Service upon request.
- (4) The Concessioner must minimize the storage of equipment and materials on the Assigned Facilities in a manner that would cause storm water contamination (i.e., storage outside without weather protection).

10) Reporting Requirements

The following chart summarizes the plan and reporting dates established by Parts A, B and C of this Maintenance Plan.

SUMMARY INITIAL AND RECURRING DUE DATES			
Report or Plan	Schedule	Due Date	Reference
Initial Requirements			
Field Management Plan	Initial	Within 60 days after the effective date of Contract	Maintenance Plan, Part B, Sec. 11) D),(5)
Annual			
Annual Concessioner Maintenance Plan (ACMP)	Annual	January 15	Maintenance Plan, Part A, Sec. 6
Annual Plan for Mechanized Equipment Use	Annual	January 15	Maintenance Plan, Part B, Sec. 11 B) and C)
Annual Concessioner Maintenance Reporting (ACMR)	Annual	January 15	Maintenance Plan, Part A, Sec. 7
Personal Property Report	Annual	December 1	Maintenance Plan, Part A, Sec. 9
Inventory of Hazardous Substances (include in Risk Management Program or Environmental Management Program)	Annual	March 1	Contract, Sec. 6 (d),(1) Maintenance Plan, Part C, Sec. 1) D)
Pesticide Request Form and Pesticide Use Log	Annual	January 15	Maintenance Plan, Part B, Sec. 5) F)
Field Management Plan		March 1	Maintenance Plan, Part B, Sec. 11) D),(5)

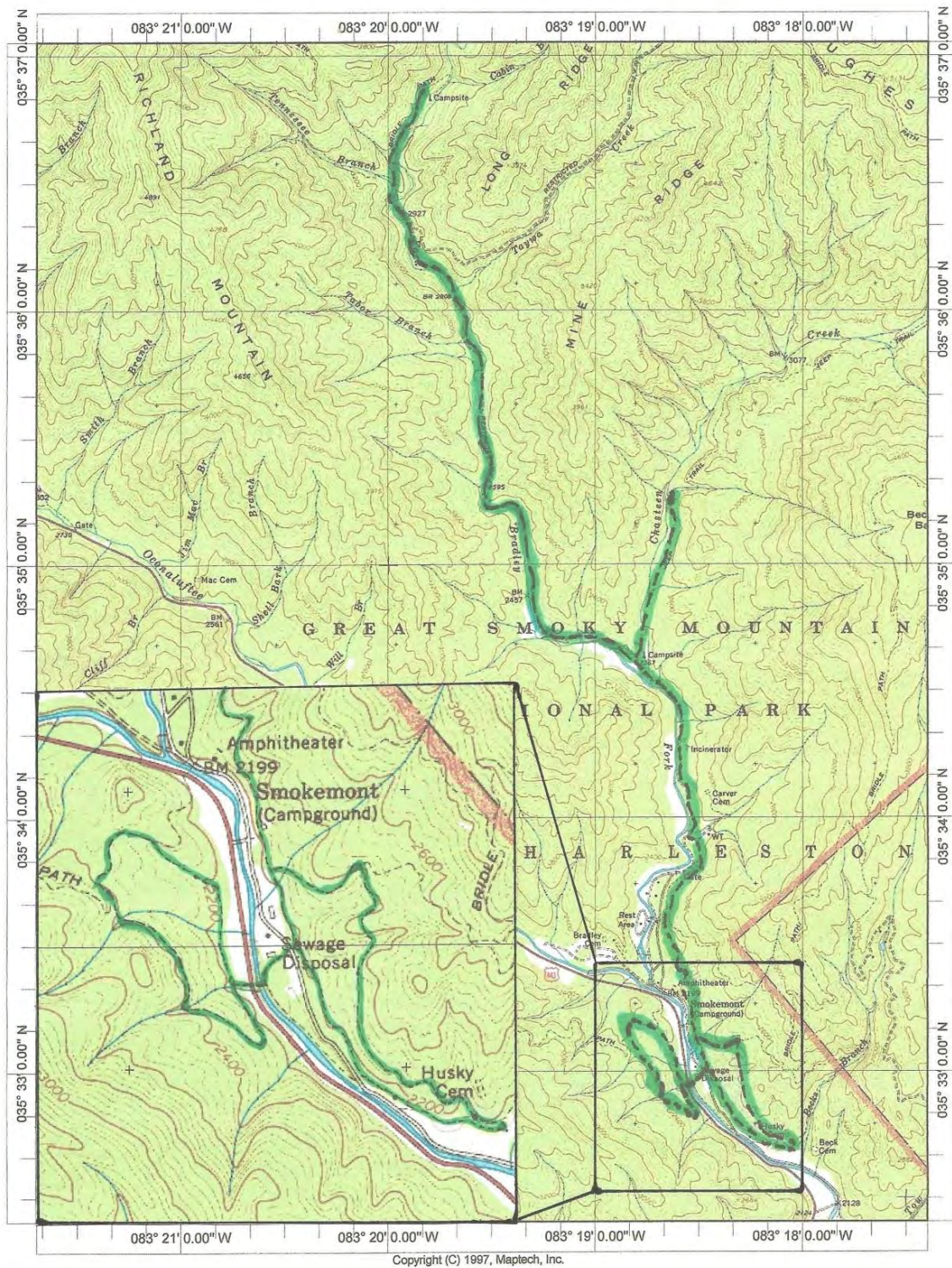
Approved effective _____, 20____

BY: _____

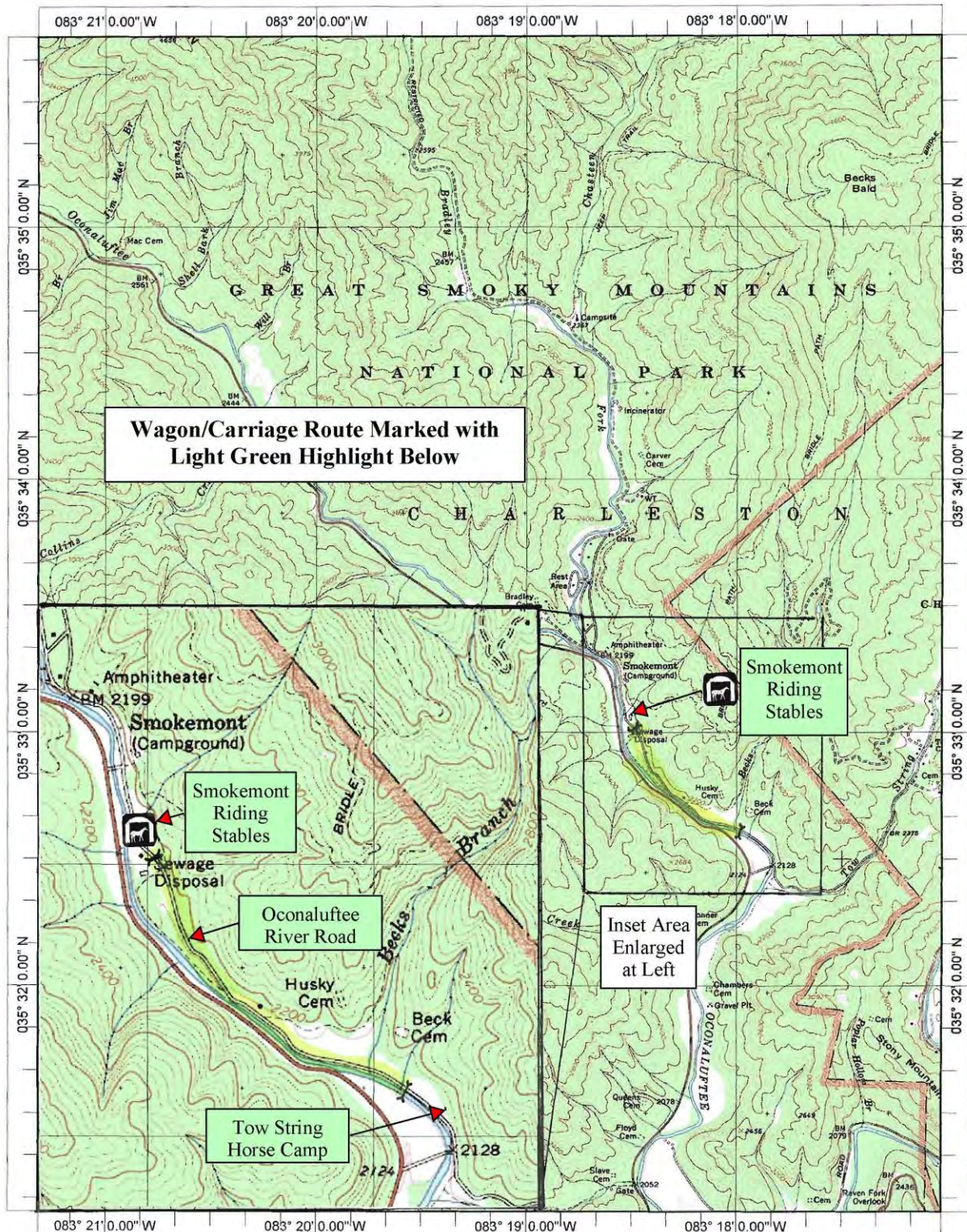
Superintendent

Great Smoky Mountains National Park

ATTACHMENT 1
TRAILS MAINTAINED BY CONCESSIONER
Smokemont Riding Stables
Guided Horseback Rides



ATTACHMENT 2
ADMINISTRATIVE ROADS MAINTAINED BY CONCESSIONER
Smokemont Riding Stables
Wagon and/or Carriage Rides



ATTACHMENT 3
Great Smoky Mountains National Park
Trail Maintenance Standards for Concessioner Horseback Riding Trails
June 2013

“Concession trail use will be concentrated in areas where trails are best able to withstand the exceptionally high level of impacts. The National Park Service will construct basic trails of a uniformly high quality, and subsequent maintenance of trails used predominantly by Concessioners will be the responsibility of the Concessioners, under National Park Service guidance and control.”

General Management Plan, 1982, Page 31

Introduction

This attachment to the Maintenance Plan provides standards for the maintenance of trails that are maintained by the Concessioner in accordance with the requirements of the Maintenance Plan to the Concession Contract. The trails assigned for maintenance by the Concessioner are the trails used for trips lasting up to two and a half hours (stables other than Cades Cove) or up to one hour (Cades Cove). At stables other than Cades Cove, over 99 percent of all Concessioner trail use occurs on these most popular trips lasting up to two and a half hours, and approximately 90 percent of Concessioner trail use occurs on the trail(s) used for the one-hour ride. The estimated use by the general public of the Concessioner-maintained trails in the Area is less than one percent. The estimated use by the Concessioner's patrons of the Concessioner-maintained trails in the Area is 99 percent.

The trails assigned to the Concessioner for trips lasting longer than two and a half hours (stables other than Cades Cove) are maintained by Area trail crews in accordance with the standards that apply to other Area horse trails. Because Concessioner use of these trails represents less than one percent of all Concessioner trail use, these trails do not require any special measures to ensure adequate maintenance. This requirement does not apply to Cades Cove Riding Stables because this stable does not provide a trip lasting longer than one hour.

As stated in the General Management Plan, Concession trails within the Area receive exceptionally high levels of impacts. The busiest stable in the Area provides horseback rides for approximately 20,000 visitors annually and the least busy stable provides rides for approximately 9,000 visitors annually. The General Management Plan recognized that these trails must be constructed to a uniformly high quality and that mechanized equipment would be required to properly maintain trails. This is the reason that the trails maintained by Concessioners are located in the Natural Environment Type II sub zone where mechanized equipment may be used. With the proper and judicious use of mechanized equipment, as well as hand tools, for regular maintenance, these trails are able to withstand this heavy use very well with no significant impacts to Area resources.

The following standards are based on the trail standards written in 1967 and again in 1979 at Great Smoky Mountains National Park, as well as excerpts from a U.S. Forest Service trail maintenance handbook. They cover the basics of trail maintenance as taught here in the Area. However, keep in mind that this is just a very basic guide to trail maintenance standards. These standards have been modified, as required, to be applicable to trail maintenance by Concessioners.

Consequences of Improper Maintenance Practices

While proper trail maintenance practices have very satisfactory results, improper maintenance practices negatively impact visitor and employee safety, visitor enjoyment, horse safety and welfare, and Area resources. To understand proper trail maintenance practices, it is helpful to also understand

the consequences of improper trail maintenance. For this reason, the following examples of poor trail maintenance practices should be avoided:

- Inadequate hardening of trail bed with crushed rock.
- Use of inappropriate material to fill and harden trail.
- Unauthorized widening or rerouting of trails with mechanized equipment causing resource damage.
- Insufficient number and improperly installed and maintained water bars and drains resulting in ineffective drainage, erosion, standing water, and a muddy trail surface.
- Excessive and ineffective grading of trails with mechanized equipment resulting in loss of soil, unstable trail bed, and the creation of a ridge of soil on the downhill slope side of the trail.

Trail Inspection

Service staff will inspect the trails assigned for use by the Concessioner as part of the annual maintenance inspection of Concessioner facilities and at other times as deemed appropriate by the Service. The results of this inspection will be documented and provided to the Concessioner. The Concessioner will include a plan for addressing deficiencies in the condition of trails maintained by the Concessioner in the Annual Concessioner Maintenance Plan (ACMP). Service staff will assist the Concessioner in developing a plan and timetable for addressing deficiencies and provide technical advice. The Area Trails Supervisor will be responsible for scheduling work to correct deficiencies on trails assigned for Concessioner use but maintained by the Service. Completion of Service inspections and the maintenance of trails maintained by the Service are subject to the availability of funding and staff.

Annual Plan for Mechanized Equipment Use

The Concessioner is required to provide the Concessions Management Specialist with an Annual Plan for Mechanized Equipment Use that is part of the Annual Concessioner Maintenance Plan (ACMP) required by the Concession Contract. This plan will describe the type of equipment, the equipment operators and qualifications, and the scope of work the Concessioner proposes for use during the following calendar year. This plan must be approved by the Superintendent prior to using mechanized equipment for trail maintenance. A form to be used as the basis for this plan is included in these standards.

Trail Tread Hardening

As a result of the heavy and continuous horse traffic on Concession trails used for the one to two and one-half hour rides offered by the Concessioner, the application of crushed rock is required to harden the trail tread. The Concessioner will be responsible for applying crushed rock to the trails shown in Attachment 1 of this Maintenance Plan to help prevent erosion and reduce the formation of boggy areas, gullies, and stair steps. Trail hardening with crushed rock is not a substitute for the construction and maintenance of drainage structures and maintenance of the proper trail tread shape but it is an important supplement to these maintenance activities. The Concessioner will specify in the ACMP the types and sources of crushed stone to be used for approval by the Superintendent and will report in the ACMP the actual quantity delivered and applied..

The sections of trail used for rides longer than two and one-half hours that are maintained by the Service do not generally require hardening with crushed rock or require much less hardening.

Equipment Usage

Horse trails maintained by the Concessioner will be of sufficient width (but no wider than six feet) to allow narrow width equipment to be used to help with trail maintenance. Although appropriate equipment can be used to accomplish a large part of the required trail maintenance, the Concessioner will also use hand tools in situations where mechanized equipment is not available or effective or where this equipment would cause unnecessary resource impacts. The Concessioner must obtain approval from the Superintendent for the specific types of mechanized equipment to be used.

The following types of mechanized equipment are recommended for use on the trails maintained by the Concessioner. Overall width, including blade, should not exceed 60 inches.

- Small to mid-size tracked skid-steer
- Small to mid-size tracked excavator
- Small size dozer (like Sutter 500 trail dozer)

Crushed rock can be delivered to the area of the trail where it is needed using a tracked vehicle with dump bed or trailer with dump bed (like Bosski 1600 UT ATV Wagon). Crushed rock should be applied judiciously to avoid a road-like appearance and to avoid unnecessary cost. It is not usually necessary to apply crushed rock over the entire width of the trail tread. The Concessioner will obtain approval from the Service for any locations where crushed rock will be stockpiled for later use.

Logging/Windfall/Hazard Tree Removal:

Logging refers to the initial work necessary to open trails for the season. Trees that have fallen across trails need to be removed to make trails passable to hikers and horse riders alike. Failure to do so often results in users bypassing such obstacles, causing further damage to trailside soil and vegetation. When trees fall across a trail, a section will be removed that will ensure that the remainder of the log does not encroach closer than 3 feet to the center of the trail. If possible, the cut log should be rolled off the trail in its entirety. If the log is too large to move in this manner, it should be cut into smaller sections and again rolled off the path and hidden from view. Every attempt should be made to hide or otherwise camouflage saw cuts along the trails. Hazard trees may need to be removed along trail sides. Hazard trees are those that are in immediate danger of falling across a trail. The Concessioner must obtain approval from the Service prior to removing hazard trees. When cut, the stump will be cut flush with ground level and covered with soil or other small debris. The tree will be fully moved out of the trail and if possible, used for trail construction needs.

Brushing/Pruning/Mowing:

Mowing generally refers to the cutting of grasses along the trailside, while brushing/pruning deals with cutting limbs, woody vegetation, and clearance along the trail. The Concessioner must complete brushing and mowing on each trail at least once a year and as needed.

For horse trails, the following clearing standards apply:

Tread width: 4 ft. minimum, 6 ft. maximum*

Clearing width: 4 ft., each side of center

Clearing height: 10 ft.

*In clearing for horse trails, tread width of 6 feet is generally confined to old road beds where this width already exists. Minimal clearing width should be necessary when the trail tread is already 6 feet wide. Any portion of existing trail exceeding six feet tread width should remain undisturbed during maintenance activities and be allowed to recover naturally with vegetation. The Concessioner should place large rocks or logs at the edge of the maintained trail tread to deter horses from leaving the maintained tread area.

The sections of concession trails maintained by the Service, rather than the Concessioner, will generally be maintained to a four feet width.

Clearing width refers to a corridor free from overhanging obstacles—either from the side or overhead. It does not mean clearing all vegetation in that corridor such as grasses and other low-lying plants and flowers. Briars, woody vegetation and tree limbs will need to be removed to provide clear and safe access for trail users. All vegetation extending into the clearance zone from live trees or shrubs shall be removed in a manner that leaves a flat or dull cut and does not unnecessarily damage the tree or shrub. Limbs should be flush cut at the trunk just outside of the branch collar.

Individual briars or other thorny plants that hang into the area to be cleared will be cut at their base. Generally, any low-lying vegetation can be left in place. But as the saying goes, “when in doubt, cut it

out". Material and limbs that have been cut will be scattered out of sight wherever possible, not left along trailside. Debris can also be used to block shortcuts around trail switchback areas.

Drainage Structure Cleaning and Installation

Drainage is the most critical element of trail maintenance and repair. Improper drainage causes problems creating erosion, bogs, trail cutting, and the general deterioration of trail tread. When drainage can be accomplished by out sloping a trail, this is the preferred method. However, many instances call for the installation of swale drains, grade reversals and/or water bars. Cleaning water bars, swales, and drain dips that are already properly installed, will take place at least two times during the concession operating season and at the end of the operating season. Drainage structures will also be checked and cleaned as needed after unusually heavy rainfall events. A "clean" structure should have a swale or dip with a cross section reflecting a low point that is vertically lower than the trail tread on the downhill side of the drainage structure and appropriately sculpted on the uphill side of the drainage structure to meet finished grade of the trail tread. The drainage structure should be achieving positive drainage and the tail ditch shall be clear of sediment and debris. For drainage structures that do not meet the above definition of clean, the Concessioner will clean the water bar, swales, or drain dips to restore the desired cross section and open the tail ditch.

When hard water bars deteriorate or become dislodged, they should be replaced with swales and drain dips. When an additional drainage structure is needed at a new location, a swale or drain dip should be installed instead of a hard water bar.

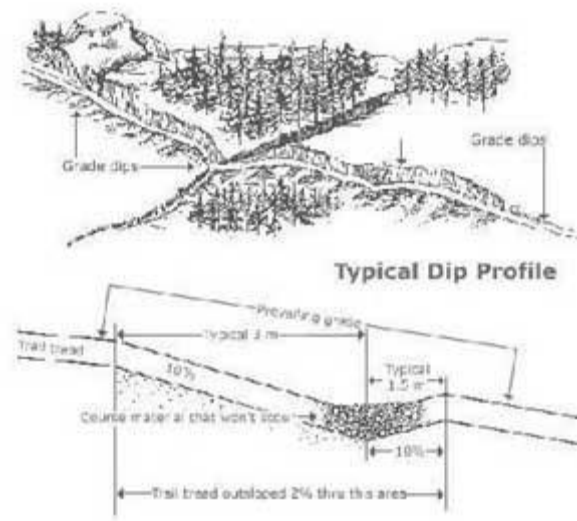
Grade Dips

The best grade dips are designed and built during the original construction. These are also called terrain dips, Coweeta dips, and swales. Other versions, often called rolling grade dips, or drain dips, can be built on most sidehill trails or constructed to replace waterbars. The basic idea is to use a reversal in grade to force water off the trail without the need for any other structure.



Grade Dip (Swale) on Chasteen Creek Trail

Terrain dips use grade reversal to take advantage of natural dips in the trail. These need to be planned into the trail when it is first laid out. The grade of the trail is reversed for about 3 to 5 m (10 to 15 ft), then "rolled" back over to resume the descent. A trail that lies lightly on the land will take advantage of each local drainage to remove water from the tread as the trail winds around trees and rocks. The terrain dip, which uses existing terrain as the control point for the grade reversal, is a natural part of the landscape.



Grade dips are much more effective than waterbars and require less maintenance. Along with outloping, they are the drainage structure of choice.

The beauty of terrain dips is that water collected from the hillside is not intercepted and carried by the tread. These grade dips are the most unobtrusive of all drainage structures if constructed with smooth grade transitions, and they require very little maintenance. Be sure to protect the drain outlet by placing guide structures along the lower edge of the tread above or below the outlet.

Another kind of grade dip is the **rolling grade dip**, which consists of a short reversal of grade in the tread. These can be designed into most sidehill trails. If a trail is descending at 7-percent grade, a short climb of, say, 3 to 5 m (10 to 20 ft) at 3 percent, followed by a return to the descent, constitutes a rolling grade dip. Water running down the trail cannot climb over the short rise and will run off the outloped tread at the bottom of the dip. The beauty of this structure is that there is nothing to rot or be dislodged. Maintenance is simple.



Rolling grade dip designed into the construction of the trail.

If the grade is steep, the tread carries a lot of water, traffic is high, or the soils are erosive, a drain dip may need some additional strengthening. Sometimes a shallow water channel can be constructed in the last several meters of tread leading into the dip. Water follows the channel off the tread without slowing down and depositing soil and debris. A spillway may be needed if there is a

potential for headcut erosion in the fillslope. The secret is to keep the water moving at a constant velocity until it is all the way off the tread.

Grade dips should be placed frequently enough to prevent water from building enough volume and velocity to carry off your tread surface. Grade dips are pointless at the very top of grades unless they intercept significant amounts of slope drainage. Usually mid-slope is the best location. Grade dips also should not introduce sediment-laden water into live streams.

Yet another grade dip is the reinforced or armored grade dip. In this dip, a curved water channel is constructed and an angled (like a waterbar) reinforcing bar of rock or wood is placed at the top of the grade reversal. The bar is placed in an excavated trench, with its top edge flush with the existing tread surface so it's not an obstacle to traffic. Essentially, this is a buried waterbar.

This short reinforced grade dip can be built to replace waterbars on existing trails, especially trails used by wheeled vehicles. Well-located waterbars can be converted by constructing a curved water channel and recontouring the outslope from the top of the bar. For longevity it is best if the bar is reseated so that the top edge is flush with the existing tread surface and the channel is constructed with the correctly angled bar as the reference point.

The outlet is critical. It should be at least 500 mm (1.5 ft) wide, and outsloped. In shallow dips the task is to prevent berms, soil buildup, and puddling. Reinforced spillways may also be needed.

To be effective, drainage structures must keep the speed, volume, and distance traveled by water down the trail to a minimum. When possible, divert the water as soon as possible off the trail, minimizing the need for additional bars down the trail. The terrain often limits exact placement of a bar. A trench is dug across the trail at a minimum 45 degree angle. Those at 45 degrees or more tend to be self-cleaning if the water flow is sufficient.

No matter what the grade, where the ground slope below the trail will allow, the tread should be out sloped 5-8% to assist in drainage.

Trail Tread Maintenance

As noted above, tread should be worked to out slope at about a 5-8% grade. On trails traversing hillsides, slough is the name given to soil, rock, and silt that have accumulated on the inside of the tread, narrowing the walkway. Berm is the debris that has built up on the outside of the tread, forming a barrier that prevents water from moving off the trail. Both slough and berm can become overgrown with vegetation. This causes horses and hikers to gradually move down slope of the original path causing additional, and in some cases, severe impact to surrounding resources. The removal of slough and berm is among the most important tasks facing maintenance crews. One must remember when removing slough and berm, you must reshape the tread to restore a slight out slope that will allow water to drain immediately away from the trail rather than running down it.

In flat areas of the trail with poor drainage, bogs and puddles will occur. To resolve these issues the Concessioner has a few options:

1. Drain the area: Ditching toward a slight slope of the landscape may be enough to move the water flow away from the area.
2. Build a turnpike: Turnpikes lift the tread above saturated soil. Turnpikes are both labor and material intensive but tend to work very well depending on location. The Concessioner will obtain Service approval for the location and method of installation prior to constructing a turnpike. In most cases, the Service, rather than the Concessioner, would construct turnpikes.
3. Move the trail: Concessioners will not re-route a trail without explicit, advance approval from the Service. In most cases, the Service, rather than the Concessioner, would complete any

re-routing of a trail. There may be times when re-routing a trail makes more sense than fighting through wet ground. However, the Service will determine if a trail re-route is required and will prioritize this work according to the availability of funding and staff to complete this work. In addition, a review of environmental and cultural resource impacts will have to be completed prior to rerouting a trail.

Great Smoky Mountains National Park
ANNUAL PLAN FOR MECHANIZED EQUIPMENT USE
 Concession Horseback Riding Stables Trails

Plan for Calendar Year: _____

Date Plan Submitted: _____

Concessioner: _____

Stable: _____

Equipment Proposed for Use:

Type of Equipment (eg. Tractor, Chainsaw)	Make and Model	Size (eg. Engine size, blade width)	Ownership of Equipment	Name of Operator(s)	Where Equipment Will Be Used (eg. One-Hour Trail)*

Operators:

Name of Operator	Drivers License Number	Drivers License State	Years of Experience	Description of Experience/Training in Operating This Type of Equipment

NOTE: Concessioner is responsible for submitting updates to this list if other operators will be used.

Great Smoky Mountains National Park
ANNUAL PLAN FOR MECHANIZED EQUIPMENT USE
 Concession Horseback Riding Stables Trails

Proposed Schedule for Use of Equipment and Intended Use:					
Type of Equipment (eg. Tractor, Chainsaw)	Specific Dates – Pre-season	Specific Dates – During Season	Specific Dates – Post-Season	Approximate Frequency – Routine Trail Maintenance	Intended Use

* For each type of equipment listed, also mark on a copy of a trail map the locations where you propose to use equipment.

Proposed Crushed Rock Usage:				
Type of crushed rock	Purpose	Source (name and location of quarry)	Approximate quantity to be used during the year	Where Crushed Rock Will Be Applied (eg. One- Hour Trail)*

* For each type of crushed rock listed, also mark on a copy of a trail map the locations where you propose to apply crushed rock.

Great Smoky Mountains National Park
ANNUAL PLAN FOR MECHANIZED EQUIPMENT USE
Concession Horseback Riding Stables Trails

PLAN REVIEW AND APPROVAL (Subject to any restrictions/changes noted below):

SUBMITTED BY (Concessioner):

Signature

Title

Date

RECOMMENDED BY:

Signature

Title

Date

APPROVED BY:

Signature

Title

Date

Restrictions/Changes Applicable to Approval:

1. All work will be in accordance with the standards described in the ***Trail Maintenance Standards for Concessioner Horseback Riding Trails*** that are included as Attachment 2 to the Operating Plan.